

## **AMENDMENTS TO THE CLAIMS**

Please amend the claims as follows:

### **LISTING OF CLAIMS:**

Claim 1. (Currently amended): A process for producing zeaxanthin and  $\beta$ -cryptoxanthin which comprises cultivating a recombinant microorganism which expresses ~~is expressing~~ a  $\beta$ -carotene hydroxylase gene and belongs ~~belonging~~ to the genus *Xanthophyllomyces* (*Phaffia*) in an aqueous nutrient medium under aerobic conditions, and isolating the resulting ~~resulted~~ carotenoids from the cells of said recombinant microorganism or from the cultured broth, wherein the  $\beta$ -carotene hydroxylase gene is originated from a microorganism which is selected from the group consisting of *Flavobacterium* sp. R1534 WT (ATCC21588), *Erwinia uredovora* ATCC19321, *Erwinia herbicola* ATCC39368, *Agrobacterium aurantiacum*, *Alcaligenes PC-1*, *Paracoccus marcusii* MH1, and a gram-negative bacteria E-396 (FERN BP-4283) which have the  $\beta$ -carotene hydroxylase gene and wherein the cultivation is carried out at a pH range from 4 to 8 and at a temperature range from 15 to 26°C for 24 to 500 hours.

Claim 2. (Currently amended): The process according to claim 1, wherein the recombinant microorganism is derived from *Xanthophyllomyces dendrorhous* (*Phaffia rhodozyma*) ATCC96815, ~~or a mutant thereof.~~

Claim 3. (Currently amended): The process according to claim 1 or 2, wherein the  $\beta$ -carotene hydroxylase gene is originated from *Flavobacterium* sp. R1534

WT (ATCC21588) or the DNA sequence of the  $\beta$ -carotene hydroxylase gene is substantially homologous thereto, whereby the amino acid sequence thereof shows more than 90% identical amino acids when compared to the amino acid sequence of crtZ of *Flavobacterium* sp.R1534 WT ~~a microorganism which is selected from the group consisting of microorganisms of the genera *Flavobacterium*, *Erwinia*, *Agrobacterium*, *Alcaligenes*, and *Paracoccus*, which are having the  $\beta$ -carotene hydroxylase gene.~~

Claim 4. (Canceled).

Claim 5. (Canceled).

Claim 6. (Currently amended): The process according to claim 1, wherein the  $\beta$ -carotene hydroxylase gene is expressed in the recombinant microorganism using the control sequences which are capable of effecting the expression of DNA sequences in a microorganism belonging to *Phaffia*.

Claim 7. (Canceled).

Claim 8. (Currently amended): The process according to claim 1 ~~claim 7~~, wherein the cultivation is carried out at pH range from 5 to 7 and at a temperature range from 18 to 22°C for 48 to 350 hours.

Claim 9. (New): The process according to claim 2, wherein the  $\beta$ -carotene hydroxylase gene is expressed in the recombinant microorganism using the control sequences which are capable of effecting the expression of DNA sequences in a microorganism belonging to *Phaffia*.

Claim 10. (New): The process according to claim 3, wherein the  $\beta$ -carotene hydroxylase gene is expressed in the recombinant microorganism using the control sequences which are capable of effecting the expression of DNA sequences in a microorganism belonging to *Phaffia*.